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FISHES OF THE GENUS EUSTOMIAS VAILLANT (STOMIIFORMES, STOMIIDAE) FROM OFF MADEIRA

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With 1 Table

ABSTRACT. Eleven species of *Eustomias* caught off Madeira in 1983 included *E. braueri* Zugmayer, not previously known from Madeiran waters, and *E. enbarbatus* Welsh and *E. lipochirus* Regan & Trewavas, both of which are new records for the North-eastern Atlantic.

RESUMO. PEIXES DO GÉNERO *EUSTOMIAS* VAILLANT (STOMIIFORMES, STOMIIDAE) COLHIDOS AO LARGO DA MADEIRA. Onze espécies de *Eustomias* colhidas ao largo da Madeira em 1983, incluindo *E. braueri* Zugmayer, que não era conhecido da Madeira são mencionadas no presente trabalho. *Eustomias enbarbatus* Welsh e *E. lipochirus* Regan & Trewavas constituem novos assinalamentos para o Oceano Atlântico nordeste.

Fishes of the genus *Eustomias* Vaillant are black, elongate, mesopelagic predators which inhabit tropical and sub-tropical oceans. The genus contains over 100 species, although many are known only from a few specimens. Gibbs (1984), Nelson (1984) and Gibbs (1986), among others, included *Eustomias* in the Melanostomiidae, but Fink (1984 ; 1985) has reviewed the interrelationships of the stomiid superfamily Stomioidea and has included *Eustomias*, and 25 other genera previously distributed among six families, within an expanded concept of the family Stomiidae.

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Gibbs (1984) listed eight species of *Eustomias* as occurring in the North-eastern Atlantic, as defined by Hureau & Monod (1973). In so doing he included *E. monodactylus* Regan & Trewavas, 1930 as a junior synonym of *E. filifer* (Gilchrist, 1908), although he subsequently considered them distinct (Gibbs, 1987). Both occur in the area (Regan & Trewavas, 1930 ; Gibbs, 1987). Gibbs *et al.* (1983) and Gomon & Gibbs (1985) each recorded an additional species from the North-eastern Atlantic, bringing the total number of species known within the area to 11. The present paper reports the capture, off Madeira, of 11 species of *Eustomias*, including two, *E. (Haploclonus) enbarbatus* Welsh, 1923 and *E. (Dinematochirus) lipochirus* Regan & Trewavas, 1930, new to the North-eastern Atlantic. The total number of *Eustomias* known in the area is now 13.

The fishes were all caught during October 1983 in rectangular midwater trawls operated from the British research vessel RRS 'Challenger' in an area from 32°32'N to 32°21'N and 17°21'W to 16°34'W. Details of the nets used and their method of operation are given elsewhere (Clarke & Pascoe, 1985). It is sufficient here to note that the trawls were of two sizes ; one with an effective mouth area of 10 m^2 (RMT-10), the other with an effective mouth area of 50 m^2 (RMT-50). Both nets had a cod-end mesh size of 4.5 mm and were towed at 2 - 2.5 kn, the speed of the vessel being adjusted so as to keep the net fishing at a predetermined depth for a given length of towing warp. The RMT-10 was towed on 1600 m of warp, at an approximate depth of 800 m. By night the RMT-50 was towed on 600 m of warp, at a depth of approximately 300 m ; by day on 3000 m of warp, a fishing depth of approximately 1500 m. The maximum depth reached by the net on each tow was recorded on a pressure gauge attached to the net frame. The net was not fitted with an opening/closing mechanism. For some tows the path of the net was illuminated by a battery powered spotlight attached to the top bar of the net. These tows formed part of a long-term study of the effects of lights on the efficiency of midwater trawls (Swinney *et al.*, 1986).

A total of one hundred and fifty-two specimens of *Eustomias* were caught, of which all but 13 were sufficiently intact to be identifiable to species. The species composition of the catches is summarised in Table 1. All the specimens have been incorporated, as lot NMSZ 1990.012, in the collections of the National Museums of Scotland.

The collection data for the two species new to the area are as follows :

E. enbarbatus

One specimen, NMSZ 1990.012.003, 60 mm SL, 'Challenger' cruise 14/83, haul C83/48, RMT-50 (unilluminated), 32°32'N 16°36'W, 300 m (max. depth), 03.05 - 05.50 hr, 23 Oct 1983.

One specimen, NMSZ 1990.012.004, 108 mm SL, 'Challenger' cruise 14/83,

haul C83/65, RMT-50 (illuminated), 32°23'N 16°53'W, 1300 m (max. depth), 12.05 - 16.55 hr, 26 Oct 1983.

E. lipochirus

One specimen, NMSZ 1990.012.009, 115 mm SL, 'Challenger' cruise 14/83, haul C83/72, RMT-50 (unilluminated), 32°30'N 16°43'W, 300 m (max. depth), 22.43 - 01.30 hr, 27/28 Oct 1983.

Both *E. enbarbatus* and *E. lipochirus* are widely distributed in the North Atlantic extending to 40°N in the west, but in the east neither has been recorded previously north of the Canary Islands (Gibbs, pers. comm. Nov 1987). The only previous record of *E.* (*Spilostomias*) *braueri* Zugmayer, 1910 in the North-eastern Atlantic is from off Gibraltar, although this species too is widely distributed elswhere in the Atlantic (Gibbs, 1984).

Table 1

	RMT-10 800 m	RMT-50 300 m	RMT-50 1500 m
E. braueri Zugmayer, 1911	—	2	—
E. enbarbatus Welsh, 1923	—	1	1
E. filifer (Gilchrist, 1908)	—	2	2
E. lipochirus Regan & Trewavas, 1930	—	1	—
E. longibarba Parr, 1927	1	2	—
E. macronema Regan & Trewavas, 1930	—	—	1
E. monodactylus Regan & Trewavas, 1930	—	1	1
E. obscurus Vaillant, 1888	22	53	33
E. schmidti Regan & Trewavas, 1930	—	3	1
E. simplex Regan & Trewavas, 1930	—	1	2
E. tetranema Regan & Trewavas, 1930	4	4	1
damaged specimens	—	11	2
Total	27	81	44

I am grateful to Malcolm Clarke for the opportunity to participate in 'Challenger' cruise 14/83, to the late Robert H. Gibbs, Jr. for confirming the identifications of specimens of *E. enbarbatus, E. lipochirus* and *E. simplex,* to the staff of the library of the National Museums of Scotland for obtaining relevant literature and to Manuel Biscoito for translating the abstract to this paper.

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NOTES ON TWO MADEIRA PLANTS

By N. C. H. Krauss [1]

The composite plant «Abundância» (*Eupatorium adenophorum* Spreng.) has been known in Madeira for many years. On July 24, 1962 I collected a second species of *Eupatorium*, *E. riparium* Schultz-Bip., confirmed by the Royal Botanic Garden, Kew, England. This was growing in association with *E. adenophorum* in a damp area along a path near Monte. Both these species of *Eupatorium* are native to Mexico. I have seen *E. riparium* growing along a small stream in a ravine at the Desierto de los Leones, Distrito Federal, in the hills above Mexico City. Both species are pests in grazing land in Hawaii.

On November 7, 1960 I collected specimens of *Ulex minor* Roth (determined by Royal Botanic Garden, Kew) in the grassy hills above Ribeiro Frio. Since then I have seen it also at Encumeada and Santo da Serra. *Ulex europaeus* L. has been known in Madeira for a long time, but I have not seen any records of *U. minor*.

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